BEFORE THE
FEDERAL COMMUNICATIONS COMMISSION
WASHINGTON, D.C. 20554

In the Matter of	)	
	)	
Application by SBC Communications Inc.,	)	
Southwestern Bell Telephone Company,	)	CC Docket No. 00-65
And Southwestern Bell Communications	)	
Services, Inc. d/b/a Southwestern Bell Long	)	
Distance for Provision of In-Region	)	
InterLATA Services in Texas	)	

JOINT SUPPLEMENTAL REPLY AFFIDAVIT OF MICHAEL C. AUINBAUH AND JOHN P. LUBE

STATE OF TEXAS)
)
COUNTY OF DALLAS)

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I, Michael C. Auinbauh, being of lawful age and duly sworn upon my oath, do hereby depose and state as follows:

I, John P. Lube, being of lawful age and duly sworn upon my oath, do hereby depose and state as follows:

1. My name is Michael C. Auinbauh. My business address is 311 S. Akard, Dallas, Texas 75202. I am Director-Wholesale Marketing for SBC Services Inc. ("SBC"). I filed an affidavit in support of SBC's application filed on January 10, 2000,[1] a reply affidavit on February 22, 2000, a supplemental affidavit on April 5, 2000, and a reply supplemental affidavit on May 19, 2000.

2. My name is John P. Lube. My business address is 308 S. Akard, Dallas, Texas 75202. I am General Manager-Network Regulatory for SBC Operations, Inc., a subsidiary of SBC.

3. My current responsibilities include representing the planning, engineering, and operations of Southwestern Bell Telephone Company's ("SWBT's") network before federal and state regulatory bodies. The Network Regulatory group's primary responsibilities are to participate, from a technical perspective, in the negotiations of local interconnection agreements with Competitive Local Exchange Carriers ("CLECs"), to participate in state arbitration proceedings where agreement cannot be reached on technical issues through negotiation, and to guide compliance of SWBT's network organization with federal and state rules and regulations implementing the Telecommunications Act of 1996 ("the Act").

[1] Application of SBC Communications Inc., and Southwestern Bell Telephone Company, and Southwestern Bell Communications Services, Inc. d/b/a/ Southwestern Bell Long Distance for Provision of In-Region, InterLATA Services In Texas, CC Docket No. 00-4 (Jan. 10, 2000).

4. I have a Bachelor of Science - Electrical Engineering degree from the University of Houston in Houston, Texas. Also, I have also completed company training and external training related to network planning and engineering, network technology, accounting, and telecommunications policy and regulation. In addition, I am Registered Professional Engineer in the State of Texas.

5. I have nearly 30-years experience with SBC. From 1969 through 1997, I held numerous positions with SWBT responsible for network planning, switching and transmission equipment engineering, transmission facility design, trunk and special services circuit design, plant cost allocation, plant valuation, plant depreciation, and the standardization of all outside plant and transmission equipment. In 1997, I held a position with SBC Long Distance (SBC's long distance affiliate) and was responsible for all regulatory matters in SWBT territory. I assumed my present title and duties in June 1999.

BACKGROUND

6. This affidavit explains how SBC's $6 billion investment in network infrastructure known as Project Pronto demonstrates an unprecedented commitment to the goals of the 1996 Telecommunication Act. This project places SBC's ILECs, including SWBT, at the forefront of investment in innovative network facilities designed to bring broadband services such as digital subscriber line ("DSL") to the vast majority of residential and small businesses customers in the SBC ILECs' operating areas at the lowest possible cost. This affidavit also rebuts the unfounded claims of some of the parties that the deployment of

Project Pronto is somehow discriminatory.[2] Just the opposite is true. The network improvements that result from Project Pronto will be available to CLECs, to the extent that any of those improvements fall within the requirements of section 251(c)(3) of the Act.

7. The network infrastructure that results from Project Pronto offers the promise of bridging the DSL digital divide (i.e., the divide between the DSL "haves" and the DSL "have nots") for mass-market consumers. Without Project Pronto, many consumers will either have a single choice for broadband services, the services available from CATV providers, or no choice at all. With SBC's significant investments in Project Pronto, these consumers will have access to a competing technology and to any service provider that chooses to use this technology. Just as importantly, however, Project Pronto bridges this DSL digital divide in a way that supports multiple broadband services providers, to the extent any service provider chooses to use this technology through SBC's offerings described in more detail below. Thus, SBC's Project Pronto brings increased choices to consumers wanting high-speed data connections and increased options to DSL service providers.

8. Although CLECs today have the ability to provide services to the mass market, none have chosen to invest in the facilities needed to serve the residential segment, except where the ILEC's copper loop facilities can be utilized. Unfortunately, due to the limitations of current broadband technologies, a DSL digital divide has developed between consumers

[2] See generally, Allegiance Supp. at 10-11; ALTS/CLEC Coalition Supp. at 6-9; AT&T Supp. at 23; AT&T Pfau/Chambers Supp. Decl. ¶¶ 60-69; CompTel Supp. at 6-8; IP Communications Minter Supp. Decl. ¶ 5; Rhythms Supp. at pp. 9-10.

that reside close to an ILEC central office and those that live beyond the reach of current DSL technologies.

CURRENT METHODS OF DSL DEPLOYMENT

9. With available DSL technology and most incumbent carriers' existing networks, DSL deployment is generally limited to all-copper loops. The maximum reach of most available DSL technology deployed on these copper loops is generally limited to 18,000 feet or less. Thus, the usable loop length is relatively close to the central office. In addition, when used for DSL-based services, these copper loops must be free of devices that interfere with the transmission of DSL signals, such as load coils. Figure 1 in Attachment A illustrates a normal configuration for providing DSL-based services over an all-copper loop.

10. One way to effectively move the central office closer to customers served by longer loops is to use digital loop carrier ("DLC") in the loop network. As the Commission is well aware, DLC technology has been used by incumbent carriers for at least the last 20 years as a means of serving a large number of customers' loops (predominantly providing POTS) using fewer feeder facilities back to the central office. Over the years, SWBT has deployed various types of DLC in its loop network. As of end of year 1999, approximately 6% of SWBT's loops in its Texas territory are served by DLC.

11. As network transmission technology and switching technology have evolved, different configurations of this DLC have been deployed. For instance, SWBT's early DLC deployment consisted of a central office terminal ("COT") and a remote terminal ("RT") connected by T1 lines, each using two copper feeder pairs. Figure 2 in Attachment A is a simple illustration of this arrangement. A later DLC configuration consisted of a COT and

an RT connected by T1 lines working over a fiber facility between the central office and the RT site. Figure 3 in Attachment A illustrates this arrangement.

12. Other configurations used by SWBT in Texas are similar to Figures 2 and 3 in Attachment A, except that the T1 lines from the RT are terminated directly on the digital switch in the central office, instead of being terminated on a COT. These configurations, shown in Figures 4 and 5 in Attachment A, are called integrated DLC ("IDLC"), meaning that the function of the COT is essentially integrated into (actually, more accurately, replaced by) the switching equipment. The advantage of IDLC is that, for POTS, it is more economical to terminate and switch the POTS signals directly out of the T1 lines. Without this integration, it is necessary for the COT to convert each digital T1 line (i.e., DS1 signal) into 24 individual analog signals and the individual line cards in the switch to reconvert the analog signal to a digital signal suitable for use in the digital switch.

13. None of these existing DLC configurations in SWBT's Texas network (i.e., Figures 2 through 5 in Attachment A) is capable of supporting the bandwidth required for most DSL-based services. In fact, nominal bit rates for most forms of DSL often exceed the total DS1 (i.e., 1.544 Mbps) bandwidth of each DLC channel bank. One exception is ISDN DSL ("IDSL"). IDSL is very similar to ISDN Basic Rate Interface ("BRI") except that ISDN BRI is carried over the public switched telephone network ("PSTN"), and IDSL is not. Instead, like the other forms of DSL, IDSL is an always-on type of connection, whether used by the customer for Internet access or any other data application. IDSL, like ISDN BRI, can be handled by the current DLC technology because its 128 kbps bandwidth (in each direction) is carried by multiple 64 kbps DS0

channels in the DLC.[3] However, because IDSL is not switched over the PSTN, IDLC (Figures 4 and 5 in Attachment A) is not suitable for IDSL.

14. In short, the use of SWBT's present loop network to provision DSL-based services is limited to (a) all-copper loops, generally up to 18,000 feet in length; and (b) current DLC, but only for IDSL. As such, current technologies and existing network infrastructure have lead to a DSL digital divide between customers whose homes and businesses are located close to an ILEC central office and those who live beyond the reach of copper-based DSL technologies. In order to remove some of these technical limitations, SBC has designed its Project Pronto infrastructure investment to effectively move the capabilities available today in central offices closer to these consumers, and to thus bridge this DSL digital divide.

DESIGN OPTIONS FOR BRIDGING THE DSL DIGITAL DIVIDE

15. In order to design the network infrastructure needed to bring broadband capabilities in the most economic manner to those customers that reside outside of the reach of current DSL technologies, SBC considered the cost and technical capabilities of available technical solutions. One overriding consideration was the ability to efficiently deliver broadband services to customers without the need to duplicate the widely dispersed and relatively expensive copper distribution network infrastructure. To do so would raise the cost of broadband services beyond the reach of most consumers. As such, SBC looked for technologies that used existing copper distribution plant to expand the reach of broadband services.

[3] See the Supplemental Reply Affidavit of Carol Chapman for additional discussion of IDSL.

16. As explained above, the goal of Project Pronto is to extend the reach of DSL-based services in the most economic manner to residences and small businesses located beyond the copper loop distance limits for most forms of DSL. Most of these customers desire DSL-based services for Internet access. The most economical way to provide such access to these customers is over their existing POTS loops. Doing so avoids the cost of a separate loop for Internet access. Given these circumstances, the logical choice of DSL technology for these customers is Asymmetric Digital Subscriber Line ("ADSL"). Therefore, Project Pronto supports both voice and data services by allowing the shared use of as much of SWBT's in-place network as possible.

WHY NEXT GENERATION DIGITAL LOOP CARRIER ("NGDLC")

17. When SBC evaluated various equipment alternatives for its broadband infrastructure, the two most logical choices available were DSLAMs and DSL-capable NGDLC. In either instance, this equipment would be placed in RT sites located closer to the customers. Both of these technologies would allow development of an overlay broadband infrastructure that could use the same existing loop in the distribution network to extend broadband services beyond RT sites.

18. As the FCC recognized in the UNE Remand Order,[4] one means of providing DSL services beyond a fiber feed RT site is locating a DSLAM at the RT site. SWBT could have decided to locate a DSLAM in an RT site and feed this DSLAM with fiber between its central office and the RT site. The "low-speed" (i.e., end user customer) side of this

[4] Third Report and Order and Fourth Further Notice of Proposed Rulemaking, Implementation of the Local Competition Provisions of the Telecommunications Act of 1996, 15 FCC Rcd 3696, 3838-39, ¶ 313 (1999) ("UNE Remand Order").

DSLAM could be cabled to the cross-connect terminals located in SWBT's feeder/distribution interface ("FDI") cabinet(s) served by that RT site so that individual customer sub-loops could be cross-connected to the DSLAM. The use of this option would be dependent on space availability in the RT site and conformance with technical standards such as heat dissipation limits at the RT site. Such DSLAM equipment would serve only data, not both voice and data. Investments in this type of infrastructure would not benefit existing voice customers.

19. Newer forms of DLC, or Next Generation Digital Loop Carrier ("NGDLC") can support the additional bandwidth necessary for DSL-based services. The RT equipment for NGDLC is fed over fiber from the central office using a high-bandwidth SONET transport facility. To demonstrate the additional bandwidth available with NGDLC, assume the NGDLC is fed with an OC-3 SONET facility. The bandwidth of the OC-3 signal is equivalent to that of 84 DS1 signals. In contrast, current DLC is fed with a few DS1 signals.

20. SWBT's new broadband infrastructure must provide for both voice (i.e., POTS) and data (i.e., DSL). Building an overlay data-only loop network would require the long-term continuation of the embedded voice loop network for all POTS growth and would deny voice services many of the maintenance advantages of fiber-feed DLC. This would result in a larger total cost over time. In addition, SWBT recognized that many RT sites simply were not of sufficient size to accommodate DSLAMs from one or more CLECs. Therefore, NGDLC was the appropriate choice of equipment for SWBT's broadband infrastructure.

21. Under Project Pronto, NGDLC will be placed in approximately 20,000 new or upgraded RT sites within SBC's 13-state ILEC territory. These NGDLC RT sites, fed by fiber optic cables, will push broadband capability deeper into the SBC ILECs' network, closer to end user customers. The end result of Project Pronto, if it is allowed to proceed as planned, will be that 80% of the customers residing in the SBC ILECs' territory will be within 12,000 feet of a central office or RT site. This will enable competitive broadband providers to offer DSL-based services with a minimum downstream speed of 1.5 Mbps, using the Project Pronto infrastructure, to approximately 77,000,000 retail customers.

PROJECT PRONTO IS NONDISCRIMINATORY

22. Several parties have raised concerns that Project Pronto is discriminatory, alleging that its infrastructure design was based on the business plan of its advanced services affiliate, SBC Advanced Solutions, Inc. ("ASI").[5] Nothing could be further from the truth. SBC began the process of analyzing the costs of technologies and economics of loop infrastructures in early 1998. This analysis culminated in the mid-summer of 1999, when the decision was made to approve the Project Pronto loop infrastructure, including the choice of technology. At that point in time, the Commission had not completed its review of the proposed SBC/Ameritech merger, nor approved the SBC/Ameritech Merger Conditions which created the obligation to establish an advanced services affiliate. This clearly rebuts the contention that this technology has been chosen based on the business plan of SBC's advanced services affiliate.

[5] ALTS/CLEC Coalition Supp. at 7-10; IP Communications Minter Supp. Decl. ¶ 8; Rhythms Supp. at 9-11.

23. SBC's choice of NGDLC technology was based on what made economic sense, i.e., the technology that could serve both the voice and the data needs of those customers beyond the reach of DSL at the lowest possible cost. The subsequent formation of ASI did not alter the fact that the SBC ILECs could only bridge the DSL digital divide with technologies that could be deployed at a cost that would allow broadband services to be made available at reasonable prices. The NGDLC that is a part of Project Pronto infrastructure is SBC's choice of a technology to achieve this end. Project Pronto is possible only because of synergies that are gained by deploying an overlay infrastructure which supports and enhances the capabilities of the existing voice network while also providing broadband capabilities to bridge the DSL digital divide at the lowest possible cost. Project Pronto simply makes economic sense in the light of customer services demands and the cost to serve those demands.

24. As explained earlier, with SBC's significant investments in Project Pronto, consumers will have access to a technology that will provide alternatives to cable modem services. SBC's Project Pronto brings increased choices to consumers wanting high-speed data connections. Project Pronto also brings alternatives to DSL service providers. Although SBC is investing $6 billion of its risk capital in Project Pronto, SBC plans to make the benefits of the infrastructure that results from Project Pronto available to all DSL service providers on equal terms. ASI will have access to the Project Pronto infrastructure under the same rates, terms and conditions available to any other requesting carrier.

25. SWBT plans to offer all requesting carriers the ability to use the Project Pronto infrastructure through wholesale product offerings. The first of these products has already been presented to CLECs. This first product would allow a CLEC the ability to provide

ADSL service to end users that obtain local exchange service from SWBT and are served by Project Pronto infrastructure. With this product, the CLEC would be able to reach customers that it could otherwise only reach if it remotely located it's own DSLAM.

26. Notwithstanding claims to the contrary,[6] SWBT also plans to offer a wholesale product to requesting carriers that provides the ability to use Project Pronto infrastructure to provide both voice and ADSL service to their customers. Similar to the ADSL-only product discussed above, CLECs would be able to use this product to reach customers that it could otherwise only reach if it remotely located it's own DSLAM.

27. Some parties have also raised concerns that only ADSL will be offered through SWBT's Project Pronto infrastructure.[7] Although the NGDLC technology being deployed by SWBT currently only supports the ADSL form of DSL technology, SWBT expects its equipment manufacturers to develop other forms of DSL that will be compatible with SWBT's deployed NGDLC. In addition, other vendors may develop NGDLC plug-in cards supporting other types of DSL. When such additional types of DSL are supported by SWBT's NGDLC vendors or other vendors, SWBT has a strong incentive to make these additional types of DSL available, depending on an analysis of business, technical, and market factors. For example, SWBT must first determine that the additional plug-in cards and any related NGDLC hardware and software are compatible with SWBT's multi-billion dollar broadband infrastructure investment. Also, there must be sufficient wholesale customer (i.e., CLEC) demand for the additional type of DSL to justify the

[6] AT&T Supp. at 23; AT&T Pfau/Chamber Supp. Decl. ¶¶ 60-62; CompTel Supp. at 7; Rhythms Supp. at 9.

[7] See, e.g., Allegiance Supp. at 11; ALTS/CLEC Coalition Supp. at 6-7.

investment necessary to modify or upgrade SWBT's NGDLC systems. Finally, as with any investment decision, a thorough analysis of the customer demand vs. customer willingness to pay and recovery of investment must be completed. A number of factors may impact this analysis, such as the cost of new cards, any impact the new cards may have on the line fill per channel bank, and any additional hardware or software upgrades that may be required in the NGDLC equipment to support the new cards. Of course, as discussed above, once any additional DSL capabilities are deployed over the NGDLC, they would be available equally to all of SWBT's wholesale customers.

CLECS' OPTIONS FOR PROVISIONING DSL

28. Through Project Pronto, SWBT plans to give all CLECs additional options for provisioning DSL-based services. Assuming SWBT is permitted by regulators to own the facilities and equipment necessary to deploy the Project Pronto infrastructure, these additional options would be made available to competitive broadband providers at TELRIC prices. Moreover, these additional options would be offered even when collocation space is available in the RT site, or even when all-copper loops are available.

29. In addition, any option for provisioning DSL-based services previously available to the CLECs prior to the rollout of Project Pronto would still be available to the CLECs after the rollout of Project Pronto.[8] These include:

30. CLEC collocation of its DSLAM at SWBT's RT site. A CLEC's collocated DSLAM can be fed using either SWBT's unbundled dark fiber to SWBT's RT site or the CLEC's own fiber to SWBT's RT site. The "low-speed" (i.e., end user customer) side of this DSLAM

[8] In contrast to Allegiance Supp. at 10-11 and ALTS/CLEC Coalition Supp. at 10-11.

can be cabled to the cross-connect terminals located in SWBT's feeder/distribution interface ("FDI") cabinet(s) served by that RT site so that individual customer sub-loops can be cross-connected to the CLEC's DSLAM. The use of this option is dependent on space availability in the RT site and conformance with technical standards such as heat dissipation limits at the RT site.

31. All-copper loops. These all-copper loops may become even more useful for provisioning DSL-based services because new forms of DSL with longer reach on all-copper loops may evolve.

32. CLEC deployment of its own broadband capability, including but not limited to its own fiber optic cables, RT sites, NGDLC or DSLAM equipment, or other type of technology, to utilize the unbundled copper sub-loop.

33. Furthermore, the rollout of Project Pronto will actually enhance the availability of some of these options. For example, if an existing customer currently has an all-copper loop providing only POTS but wants integrated POTS and ADSL over a single loop, these integrated services can be provisioned using the Project Pronto network architecture. If Project Pronto is used, the result will be to actually free the existing copper feeder pair, making it available to provision the feeder portion of an all-copper-based DSL service.

34. Another important example of Project Pronto's enhancement of the CLECs' other options is related to the new RT sites for Project Pronto. The Commission rules require collocation at any technically feasible point. At the same time, the Commission has "acknowledge[d] that the incumbent's network was not designed to house additional equipment of competitors," and that "(o)ur rules do not require incumbents to build

additional space." [9] However, the new RT sites for Project Pronto will be sized larger than they otherwise would be, in order to create additional collocation space for the CLECs in these RT sites.

35. Whether a particular CLEC opts for SWBT's planned Project Pronto broadband services, one of the other alternatives listed above, or any combination of these depends entirely on the CLEC's business plan. For instance, if a particular CLEC's business plan includes offering DSL-based services to very highly-concentrated hi-tech industries in areas of Austin or Dallas, it might be able to do so most economically by placing its own fiber optic cables, RT sites, and equipment.

SUMMARY

36. SBC's investments in Project Pronto infrastructure serve the public interest by bringing broadband service choices to many additional end user customers and competitive broadband providers. Deploying fiber deeper into the network, closer to customers, to meet escalating demand for greater bandwidth should be encouraged, not criticized. Project Pronto, contrary to some parties' claims, does not discriminate against any provider or in any way harm competition. In fact, Project Pronto creates just the opposite results. CLECs who offer DSL services, retain all of the options they currently have for provisioning their services. Those same providers gain the benefits of potentially reaching a greater number of customers by using SWBT's planned wholesale broadband services without the need to locate equipment in RT sites to reach distant customers. Finally, and most significantly, SBC's investment in Project Pronto's infrastructure brings additional

[9] UNE Remand Order, 15 FCC Rcd at 3796, ¶ 221.

broadband service options to customers who may otherwise have the choice of only one technology, cable modem service, or no choices at all.

This concludes my affidavit.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

Executed on _____, 2000.

_____

Michael C. Auinbauh
Director – Wholesale Marketing

STATE OF TEXAS

COUNTY OF DALLAS

Subscribed and sworn to before me
this _____ day of _____, 2000.

_____
Notary Public

This concludes my affidavit.

I declare under penalty of perjury that the foregoing is true and correct to the best of my knowledge.

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John P. Lube
General Manager – Network Regulatory

STATE OF TEXAS

COUNTY OF DALLAS

Subscribed and sworn to before me
this _____ day of _____, 2000.

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Notary Public